

2015年云南省肿瘤登记地区恶性肿瘤发病与死亡分析

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摘要:[目的] 分析 2015 年云南省肿瘤登记地区恶性肿瘤发病与死亡情况。[方法] 收集云南省 10 个肿瘤登记处上报的 2015 年恶性肿瘤发病、死亡及人口资料,对数据进行审核和汇总。计算恶性肿瘤发病和死亡的粗率、标化率、累积率(0~74 岁)和前 10 位恶性肿瘤构成,并按地区(城市/农村)、性别和年龄进行分层分析。[结果] 2015 年云南省肿瘤登记地区登记人口 4 471 006 人(城市 2 959 576 人,农村 1 511 430 人)。恶性肿瘤发病粗率为 212.44/10 万,中标率为 143.77/10 万,世标率为 139.16/10 万,累积率为 16.01%。男性发病率高于女性,城市发病率高于农村。恶性肿瘤发病率在 40 岁后迅速升高,在 75~79 岁达到高峰。发病前 5 位的恶性肿瘤依次为肺癌、乳腺癌、结直肠癌、肝癌和宫颈癌。儿童组(0~14 岁)常见的恶性肿瘤是白血病和脑及神经系统肿瘤,青壮年组(15~44 岁)常见的恶性肿瘤是乳腺癌和甲状腺癌。中年组(45~64 岁)常见的恶性肿瘤是乳腺癌和肺癌。老年组(65 岁及以上)常见的恶性肿瘤是肺癌和结直肠癌。恶性肿瘤死亡粗率为 135.88/10 万,中标率为 85.55/10 万,世标率为 84.25/10 万,累积率为 9.60%。男性死亡率高于女性,农村标化死亡率高于城市。恶性肿瘤死亡率在 45 岁后迅速升高,在 80~84 岁达到高峰。死亡前 5 位的恶性肿瘤依次为肺癌、肝癌、结直肠癌、胃癌和乳腺癌。白血病、脑及神经系统肿瘤是儿童组(0~14 岁)最常见的恶性肿瘤死亡原因,乳腺癌和肺癌是青壮年组(15~44 岁)最常见的恶性肿瘤死亡原因,肺癌和肝癌是中年组(45~64 岁)和老年组(65 岁及以上)最常见的恶性肿瘤死亡原因。[结论] 云南省恶性肿瘤发病和死亡具本地特征,不同地区、不同性别和年龄别人群癌谱不同。

关键词:肿瘤登记;恶性肿瘤;发病率;死亡率;云南

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Cancer Incidence and Mortality of Yunnan Cancer Registration Areas in 2015

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Abstract: [Purpose] To analyze the cancer incidence and mortality in Yunnan cancer registration areas in 2015. [Methods] Population and cancer data from 10 local cancer registries of Yunnan province in 2015 were collected and data quality were evaluated according to the criteria of quality control. The crude rates, age-standardized rates (ASR), cumulative rates and the proportion of top 10 cancers were calculated. Incidence and mortality stratified by areas (urban/rural), gender and age groups were also analyzed. [Results] The coverage of population from the cancer registries were 4 471 006 (2 959 576 in urban and 1 511 430 in rural). The crude cancer incidence in Yunnan cancer registration areas was 212.44/10⁵. Age-standardized incidence rates adjusted by Chinese standard population (ASIRC) and by world standard population (ASIRW) were 143.77/10⁵ and 139.16/10⁵, respectively. The cumulative incidence rate (0~74 years old) was 16.01%. Males had higher incidence than females, and the incidence in urban areas was higher than that in rural areas. Cancer incidence increased rapidly after the age of 40 and reached the peak at the age group of 75~79 years. The top five cancer types were lung cancer, breast cancer, colorectal cancer, liver cancer and cervix cancer. The top two common cancers of age group 0~14 years were leukemia and brain tumor. The top two common cancers of age group 15~44 years were breast cancer and thyroid cancer. The top two common cancer of group of 45~64 years were lung cancer and breast cancer. The top two common cancer of age group ≥65 years were breast cancer and lung cancer. The crude cancer mortality was 135.88/10⁵. The age-standardized mortality rates adjusted by Chinese standard population (ASMRC) and by world standard population (ASMRW) were 85.55/10⁵ and 84.25/10⁵, respectively. The cumulative mortality rate (0~74 years old) was 9.60%. Males had higher mortality

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than females, and the age-standardized mortality rates in urban areas were higher than those in rural areas. Cancer mortality increased rapidly after the age of 45 and reached the peak at the age group of 80~84 years. Lung cancer was the leading cause of cancer death, followed by liver cancer, colorectal cancer, stomach cancer and breast cancer. Leukemia and brain tumor were the top two common causes of cancer death of age group 0~14 years. The top two common cause of cancer death of age group 15~44 years were breast cancer and Liver cancer. The top two common cause of cancer death of age group 45~64 years group and age group ≥ 65 years were lung cancer and liver cancer. [Conclusion] The cancer incidence and mortality of Yunnan registration areas has its local characteristics, and different regions, gender and age groups have different cancer profiles.

Key words: cancer registry; malignant tumor; incidence; mortality; Yunnan

恶性肿瘤已成为全球范围内的主要死因之一,严重威胁人类的生命健康和期望寿命^[1]。连续的肿瘤登记工作能全面、及时掌握恶性肿瘤的发病、死亡和生存情况,是肿瘤预防控制工作的基础。云南省自开展肿瘤登记工作以来已经连续4年对肿瘤登记地区恶性肿瘤的发病和死亡情况进行报道^[2-5],初步掌握了云南省肿瘤登记地区恶性肿瘤的发病、死亡情况。2018年,云南省肿瘤登记中心收集了2015年10个登记处的数据进行进一步统计分析。

1 资料与方法

1.1 资料来源

资料来源于2015年云南省昆明市官渡区、盘龙区、西山区、保山市隆阳区和腾冲市,红河州个旧市和屏边县,玉溪市红塔区、易门县和澄江县(以下简称区县名)10个肿瘤登记点恶性肿瘤的新发病例、死亡病例和户籍人口数据。其中盘龙区、官渡区、西山区、红塔区和隆阳区为城市地区,腾冲市、个旧市、易门县、澄江县和屏边县为农村地区。

人口资料取自当地公安、统计部门每年收集的辖区户籍居民人口总数及其性别、年龄组构成资料。

肿瘤新发病例报告范围为全部恶性肿瘤(ICD-10编码为C00.0~C97、D45、D46、D47)和中枢神经系统良性肿瘤(D32.0~D33.9)。各肿瘤登记处主要收集汇总登记地区内有诊治能力的医疗机构诊治的恶性肿瘤病例信息、县乡村三级防癌网收集的恶性肿瘤病例信息及职工和居民医疗保险数据库、新型农村合作医疗数据库和死因监测数据库等收集的肿瘤相关数据。

2015年,10个肿瘤登记点覆盖人口总数为4 471 006人,占全省2015年年中人口的9.43%。其中城市地区为2 959 576人,占登记人口的66.19%;农村地区为1 511 430人,占登记人口的33.81%。男性人口数为2 253 017人,女性人口数为2 217 989,男女性别比为1.02:1。

1.2 质量评价

根据《中国肿瘤登记工作指导手册(2016)》^[6]和国际癌症研究中心(IARC)/国际癌症登记协会(IACR)^[7-8]对登记质量的相关要求,对数据进行审核和评价。通过病理诊断比例(MV%)、只有死亡医学证明书比例(DCO%)、死亡/发病比(M/I)等主要指标,以及发病率年度变化和人口结构的合理性,评价资料的可靠性、完整性、有效性。2015年云南省肿瘤登记地区合计病理诊断比例为70.19%(城市69.52%,农村71.77%),只有死亡医学证明书比例为2.28%(城市2.67%,农村1.35%),死亡/发病比为0.64(城市0.63,农村0.65)。

1.3 统计学处理

对数据合并汇总,按地级市和县级市划分城乡,分别计算分地区、性别、年龄别发病(死亡)率、标化发病(死亡)率、构成比、0~74岁累积发病(死亡)率、35~64岁截缩率,并对前10位发病和死亡的恶性肿瘤进行分析。中国和世界人口年龄标化发病(死亡)率(中标率和世标率)的计算采用2000年中国标准人口构成和Segi's世界标准人口构成。

采用Excel和IARC发布的IARCrgTools2.05审核、评估数据。利用SAS软件计算肿瘤的发病率和死亡率等指标。

2 结 果

2.1 发病率

云南省肿瘤登记地区 2015 年恶性肿瘤新发病例 9498 例,男性 5041 例,女性 4457 例,男女性别比为 1.13:1。城市地区 6664 例,占新发病例数的 70.16%,农村地区 2834 例,占新发病例数的 29.84%。

云南省肿瘤登记地区恶性肿瘤发病率为 212.44/10 万 (男性 223.74/10 万,女性 200.95/10 万),中标率 143.77/10 万,世标率 139.16/10 万,累积率为 16.01%(Table 1)。

2.1.1 年龄别与性别发病率

云南省肿瘤登记地区恶性肿瘤年龄别发病率随着年龄增长而增加,在 40 岁后增加迅速,75 岁组达到峰值为 926.57/10 万,80 岁以后有所下降。

在不同性别中,男、女性发病率均随着年龄增长而增加,40 岁后增加迅速,男性和女性均在 75 岁组达到峰值,分别为 1203.04/10 万和 770.13/10 万。在 0~45 岁年龄组,女性发病率总体高于男性,50 岁以后男性高于女性(Table 2;Figure 1)。

2.1.2 城乡地区发病率

云南省肿瘤登记城市地区发病率为 225.17/10

Table 1 Incidence of cancer in Yunnan cancer registry, 2015

Registries	Gender	New cases	Crude incidence (1/10 ⁵)	ASR China (1/10 ⁵)	ASR world (1/10 ⁵)	Cumulative rate (0~74 years)(%)	Truncated rate (35~64 years)(1/10 ⁵)
All	Both	9498	212.44	143.77	139.16	16.01	233.89
	Male	5041	223.74	148.72	146.14	17.21	222.47
	Female	4457	200.95	139.81	133.16	14.83	246.18
Urban	Both	6664	225.17	144.14	139.35	15.85	231.04
	Male	3575	241.24	148.84	146.35	17.06	220.82
	Female	3089	209.04	139.79	132.85	14.62	242.16
Rural	Both	2834	187.50	143.04	139.00	16.43	240.67
	Male	1466	190.11	148.23	145.52	17.61	226.33
	Female	1368	184.79	140.35	134.58	15.36	255.89

Note: ASR: age-standardized rate

Table 2 Age-specific incidences of cancer in Yunnan cancer registry, 2015(1/10⁵)

Age group (years)	All			Urban			Rural		
	Both	Male	Female	Both	Male	Female	Both	Male	Female
0~	16.98	10.95	23.43	28.45	18.39	39.18	0	0	0
1~	8.07	7.85	8.31	8.75	10.81	6.56	6.90	2.69	11.34
5~	12.89	13.38	12.38	11.80	9.50	14.20	14.67	19.61	9.37
10~	12.21	11.05	13.44	10.03	10.46	9.58	15.59	11.94	19.58
15~	10.54	13.45	7.47	13.80	18.09	9.35	4.94	5.68	4.13
20~	26.25	19.43	33.24	27.22	18.91	35.54	24.69	20.24	29.43
25~	35.60	25.77	45.43	39.48	29.82	48.76	29.00	19.24	39.45
30~	57.58	37.86	77.17	54.98	34.70	74.09	62.56	43.46	83.54
35~	91.73	67.35	116.59	96.97	70.28	123.32	81.40	61.84	102.67
40~	123.75	96.63	152.24	127.18	98.61	156.86	116.46	92.48	142.24
45~	187.46	145.50	230.60	181.81	142.65	222.12	198.67	151.15	247.41
50~	267.68	236.51	299.48	258.15	222.57	294.34	287.96	266.04	310.48
55~	373.05	401.05	345.42	374.26	407.14	342.11	370.64	388.97	352.17
60~	500.59	563.28	438.99	484.67	558.66	413.26	539.80	574.31	504.35
65~	656.49	779.57	530.64	640.18	760.18	517.32	699.58	830.94	565.75
70~	835.52	1021.99	651.18	835.90	1017.79	651.03	834.55	1033.21	651.53
75~	926.57	1203.47	670.13	984.20	1248.80	722.25	782.82	1075.43	553.66
80~	892.81	1186.25	639.09	950.31	1209.44	712.03	742.88	1117.91	467.17
85+	718.93	985.92	520.31	746.13	1044.56	514.13	629.71	770.80	539.04

万 (男性 241.24/10 万, 女性 209.04/10 万), 中标率 144.14/10 万, 世标率 139.35/10 万, 累积率 (0~74 岁) 15.85%, 截缩率 (35~64 岁) 231.04/10 万。农村地区发病率为 187.50/10 万 (男性 190.11/10 万, 女性 184.79/10 万), 中标率 143.04/10 万, 世标率 139.00/10 万, 累积率 (0~74 岁) 16.43%, 截缩率 (35~64 岁) 242.16/10 万。

城乡比较, 城市地区男女合计发病率、中标率、世标率均略高于农村地区 (Table 1; Figure 2)。

2.2 主要恶性肿瘤发病

云南省肿瘤登记地区 2015 年发病率居第 1 位的是肺癌, 其次是乳腺癌、结直肠癌、肝癌和宫颈癌, 前 10 位恶性肿瘤占全部恶性肿瘤的 69.43%。居男性恶性肿瘤发病率第 1 位的是肺癌, 其次是结直肠癌、肝癌、胃癌和前列腺癌, 前 10 位恶性肿瘤占全部恶性肿瘤的 80.47%。居女性恶性肿瘤发病率第 1 位的是乳腺癌, 其次是结直肠癌、肺癌、宫颈癌和甲状腺癌, 前 10 位恶性肿瘤占全部恶性肿瘤的 77.00% (Table 3)。

2.2.1 城市地区主要恶性肿瘤发病情况

居城市地区恶性肿瘤发病率第 1 位的是肺癌, 其次是乳腺癌、结直肠癌、肝癌和胃癌, 前 10 位恶性肿瘤占全部恶性肿瘤的 70.60%。居男性恶性肿瘤发病率前 5 位的依次是肺癌、结直肠癌、肝癌、胃癌和前列腺癌, 前 10 位恶性肿瘤占全部恶性肿瘤的 80.07%。居女性恶性肿瘤发病率第 5 位的依次是乳腺癌、结直肠癌、肺癌、甲状腺癌和宫颈癌, 前 10 位恶性肿瘤占全部恶性肿瘤的 85.21% (Table 4)。

2.2.2 农村地区主要恶性肿瘤发病

居云南省肿瘤登记农村地区恶性肿瘤发病率前 5 位的是肺癌、宫颈癌、乳腺癌、结直肠癌和肝癌, 前

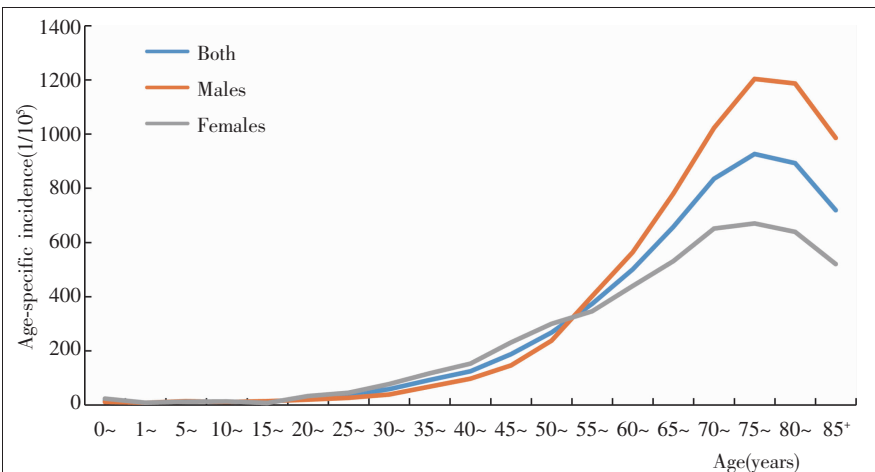


Figure 1 Age-specific incidence for all cancers in Yunnan cancer registries, 2015

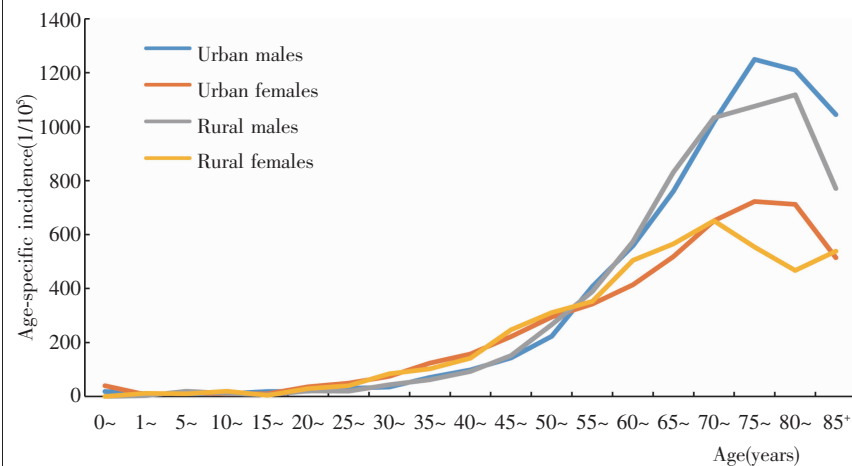


Figure 2 Age-specific incidence for all cancers in Yunnan urban and rural cancer registries, 2015

10 位恶性肿瘤占全部恶性肿瘤的 72.50%。居男性恶性肿瘤发病率第 1 位的恶性肿瘤是肺癌, 其次是肝癌、结直肠癌、胃癌和膀胱癌, 前 10 位恶性肿瘤占全部恶性肿瘤的 81.65%。居女性恶性肿瘤发病率第 1 位的是宫颈癌, 其次是乳腺癌、肺癌、结直肠癌和肝癌, 前 10 位恶性肿瘤占全部恶性肿瘤的 78.79% (Table 5)。

2.2.3 各年龄组主要恶性肿瘤发病

在不同性别、年龄组, 恶性肿瘤好发部位也不同。儿童组 (0~14 岁) 新发恶性肿瘤 82 例, 占全部病例的 0.86%, 白血病、脑及神经系统肿瘤是儿童组最常见的肿瘤, 其中男性发病第 1 位的是脑及神经系统肿瘤, 女性发病第 1 位的是白血病。青壮年组 (15~44 岁) 新发恶性肿瘤 1240 例, 占全部病例的 13.06%, 乳腺癌和甲状腺癌是青壮年组最常见的恶

Table 3 The top 10 cancer incidence in Yunnan cancer registry, 2015

Rank	Sites	Both			Male			Female				
		Incidence Proportion (1/10 ⁵)	ASR China (1/10 ⁵)	Sites	Incidence Proportion (1/10 ⁵)	ASR China (1/10 ⁵)	Sites	Incidence Proportion (1/10 ⁵)	ASR China (1/10 ⁵)	Sites		
1	Lung	40.10	18.88	24.67	Lung	56.86	25.41	35.40	Breast,female	28.27	14.07	20.95
2	Breast,female	28.27	6.72	20.95	Colorectum	29.65	13.25	19.30	Colorectum	23.76	11.82	15.00
3	Colorectum	26.73	12.58	17.11	Liver	27.87	12.46	18.81	Lung	23.08	11.49	14.24
4	Liver	20.11	9.47	13.23	Stomach	16.64	7.44	10.74	Cervix	18.12	9.02	13.61
5	Cervix	18.12	4.23	13.61	Prostate	10.96	4.90	6.28	Thyroid gland	16.37	8.14	13.97
6	Stomach	13.89	6.54	8.84	Bladder	9.14	4.09	5.48	Liver	12.22	6.08	7.68
7	Prostate	10.96	2.60	6.28	Leukemia	7.90	3.53	6.24	Stomach	11.09	5.52	6.98
8	Thyroid gland	10.49	4.94	8.94	Esophagus	7.63	3.41	4.99	Ovary	7.48	3.72	5.72
9	Ovary	7.48	1.75	5.72	Brain	6.75	3.02	5.16	Uterus	7.35	3.66	5.03
10	Uterus	7.35	1.72	5.03	Non-Hodgkin lymphoma	6.61	2.96	4.97	Brain	6.99	3.48	5.47

Table 4 The top 10 cancer incidence in urban cancer registry of Yunnan, 2015

Rank	Rank Sites	Both			Male			Female				
		Incidence Proportion (1/10 ⁵) (%)	ASR China (1/10 ⁵)	Sites	Incidence Proportion (1/10 ⁵) (%)	ASR China (1/10 ⁵)	Sites	Incidence Proportion (1/10 ⁵) (%)	ASR China (1/10 ⁵)			
1	Lung	41.22	18.31	23.69	Lung	58.51	24.25	33.37	Breast,female	30.05	14.37	21.42
2	Breast,female	30.05	6.78	21.42	Colorectum	32.53	13.48	19.25	Colorectum	25.31	21.11	14.90
3	Colorectum	28.92	12.85	17.05	Liver	28.95	12.00	18.20	Lung	23.89	11.43	14.15
4	Liver	20.71	9.20	12.69	Stomach	18.15	7.52	10.94	Thyroid gland	19.22	9.19	16.20
5	Stomach	15.27	6.78	9.19	Prostate	13.63	5.65	6.95	Cervix	14.28	6.83	10.33
6	Cervix	14.28	3.17	10.33	Bladder	9.65	4.00	5.20	Liver	12.45	5.96	7.20
7	Prostate	13.63	3.03	6.95	Leukemia	8.57	3.55	6.04	Stomach	12.38	5.92	7.47
8	Thyroid gland	12.47	5.54	10.59	Esophagus	8.44	3.50	5.10	Ovary	7.85	3.76	6.23
9	Ovary	7.85	1.74	6.23	Non-Hodgkin lymphoma	7.49	3.10	5.39	Brain	7.11	3.40	5.36
10	Leukemia	7.20	3.20	5.27	Pancreas	7.29	3.02	4.31	Uterus	6.77	3.24	4.49

Table 5 The top 10 cancer incidence in rural cancer registry of Yunnan, 2015

Rank	Sites	Both			Male			Female				
		Incidence Proportion (1/10 ⁵) (%)	ASR China (1/10 ⁵)	Sites	Incidence Proportion (1/10 ⁵) (%)	ASR China (1/10 ⁵)	Sites	Incidence Proportion (1/10 ⁵) (%)	ASR China (1/10 ⁵)	Sites		
1	Lung	37.91	20.22	27.05	Lung	53.69	28.24	40.42	Cervix	25.80	13.96	20.69
2	Cervix	25.80	6.74	20.69	Liver	25.81	13.57	20.13	Breast,female	24.72	13.38	19.69
3	Breast,female	27.72	6.56	19.69	Colorectum	24.12	12.69	19.11	Lung	21.48	11.62	14.57
4	Colorectum	22.43	11.96	17.07	Stomach	13.75	7.23	10.28	Colorectum	20.67	11.18	15.20
5	Liver	18.92	10.09	14.39	Bladder	8.17	4.30	6.24	Liver	11.75	6.36	8.75
6	Stomach	11.18	5.96	8.11	Leukemia	6.61	3.48	6.20	Thyroid gland	10.67	5.77	9.37
7	Uterus	8.51	2.22	6.29	Brain	6.22	3.27	5.34	Uterus	8.51	4.61	6.29
8	Ovary	6.75	1.76	4.84	Esophagus	6.10	3.21	4.63	Stomach	8.51	4.61	6.03
9	Thyroid gland	6.62	3.53	5.68	Prostate	5.84	3.07	4.38	Brain	6.75	3.65	5.71
10	Brain	6.48	3.46	5.51	Non-Hodgkin lymphoma	4.93	2.59	4.07	Ovary	6.75	3.65	4.84

性肿瘤,其中青壮年男性发病居第1位的是肝癌,其次是结直肠癌,女性居发病第1位的是甲状腺癌,其次是乳腺癌。中年组(45~64岁)新发恶性肿瘤3902例,占全部病例的41.08%,乳腺癌、肺癌是中年组常见的恶性肿瘤,其中居中年男性发病第1位的是肺癌,其次是肝癌;居女性发病第1位的是乳腺癌,其次是宫颈癌。老年组(65岁及以上)新发恶性肿瘤4274例,占全部病例的45.00%,肺癌、结直肠癌是老年组常见的恶性肿瘤,居老年男性和女性发病前2位的癌症一致(Table 6)。

2.3 死亡率

云南省肿瘤登记地区2015年恶性肿瘤死亡病例6075例,男性3673例,女性2402例,男女比例为1.53:1。其中城市地区4223例,占全部死亡病例的69.51%,农村地区1852例,占全部死亡病例的30.49%。

云南省肿瘤登记地区2015年恶性肿瘤死亡率为135.88/10万(男性163.03/10万,女性108.30/10万),中标率85.55/10万,世标率84.25/10万,累积率(0~74岁)9.60%,截缩率(35~64岁)118.36/10万(Table 7)。

2.3.1 年龄别与性别死亡率

云南省肿瘤登记地区恶性肿瘤年龄别死亡率在44岁以前较低,45岁后随年龄的增长而增加,在80岁年龄组达到高峰,为870.69/10万。男、女死亡率变化趋势相似(Table 8;Figure 3)。

2.3.2 城乡地区死亡率

城市地区恶性肿瘤死亡率为142.69/10万(男性172.69/10万,女性112.61/10万),中标率为83.73/10万,世标率为82.65/10万,累积率(0~74岁)9.21%,截缩率(35~64岁)113.42/10万。

农村地区恶性肿瘤死亡率为122.53/10万(男性144.47/10万,女性99.69/10万),中标率为89.90/10万,世标率为88.44/10万,累积率(0~74岁)10.59%,截缩率(35~64岁)128.97/10万。

城市与农村相比,粗死亡率城市高于农村,中标率、世标率、累积率和截缩率农村高于城市。农村和城市地区的年龄别死亡率均在80岁年龄组达到高值(Table 7,8;Figure 4)。

2.4 主要恶性肿瘤死亡

居云南省肿瘤登记地区恶性肿瘤死亡率前5位

的依次是肺癌、肝癌、结直肠癌、胃癌和乳腺癌,前10位恶性肿瘤占全部恶性肿瘤的77.05%。居男性恶性肿瘤死亡率前5位的依次是肺癌、肝癌、结直肠癌、胃癌和前列腺癌,前10位恶性肿瘤占全部恶性肿瘤的84.70%。居女性恶性肿瘤死亡率前5位的是肺癌、结直肠癌、肝癌、胃癌和乳腺癌,前10位恶性肿瘤占全部恶性肿瘤的79.23%(Table 9)。

2.4.1 城市地区主要恶性肿瘤死亡

居云南省肿瘤登记城市地区恶性肿瘤死亡率第1位的是肺癌,其次是肝癌、结直肠癌、胃癌和乳腺癌,前10位恶性肿瘤占全部恶性肿瘤的77.34%。居男性死亡率第1位的恶性肿瘤是肺癌,其次是肝癌、结直肠癌、胃癌和前列腺癌,前10位恶性肿瘤占全部恶性肿瘤的85.03%。居女性恶性肿瘤死亡率第1位的是肺癌,其次是结直肠癌、肝癌、乳腺癌和胃癌,前10位恶性肿瘤占全部恶性肿瘤的79.45%(Table 10)。

2.4.2 农村地区主要恶性肿瘤死亡

居云南省肿瘤登记农村地区恶性肿瘤死亡率前5位的依次是肺癌、肝癌、结直肠癌、胃癌和宫颈癌,前10位恶性肿瘤占全部恶性肿瘤的78.40%。居男性恶性肿瘤死亡率前5位的恶性肿瘤依次是肺癌、肝癌、结直肠癌、胃癌和膀胱癌,前10位恶性肿瘤占全部恶性肿瘤的84.83%。居女性恶性肿瘤死亡率前5位的依次是肺癌、结直肠癌、肝癌、胃癌和宫颈癌,前10位恶性肿瘤占全部恶性肿瘤的80.62%(Table 11)。

2.4.3 各年龄组主要癌症死亡情况

在不同性别、年龄组,恶性肿瘤死亡构成有所不同。儿童组(0~14岁)恶性肿瘤死亡47例,占全部病例的0.77%,白血病、脑及神经系统肿瘤是儿童组最常见的恶性肿瘤死亡原因。青壮年组(15~44岁)恶性肿瘤死亡447例,占全部病例的7.36%,乳腺癌、肝癌是青壮年组最常见的恶性肿瘤死亡原因。中年组(45~64岁)恶性肿瘤死亡2082例,占全部病例的34.27%,肺癌、肝癌是中年组常见的恶性肿瘤死亡原因。老年组(65岁及以上)恶性肿瘤死亡3499例,占全部病例的57.60%,肺癌、结直肠癌是老年组常见的恶性肿瘤死亡原因(Table 12)。

3 讨论

分析近几年云南省数据^[2-5],并结合本文结果显

Table 6 The top 10 cancer incidence in different age groups in the cancer registry of Yunnan, 2015

Gender	Rank	Sites	0~4 age group			5~14 age group			15~44 age group			45~64 age group			≥65 age group		
			Inci- dence (1/10 ⁵)	Propor- tion (%)	Sites	Inci- dence (1/10 ⁵)	Propor- tion (%)	Sites	Inci- dence (1/10 ⁵)	Propor- tion (%)	Sites	Inci- dence (1/10 ⁵)	Propor- tion (%)	Sites	Inci- dence (1/10 ⁵)	Propor- tion (%)	Sites
Both	1	Brain	3.43	36.36	Leukemia	3.76	30.00	Breast,female	16.66	26.29	Breast,female	53.81	17.40	Lung	192.79	24.38	
	2	Leukemia	3.00	31.82	Brain	2.93	23.33	Thyroid gland	10.83	17.10	Lung	53.43	17.27	Colorectum	120.26	15.21	
	3	Other and unspecified	1.71	18.18	Other and unspecified	2.30	18.33	Cervix	10.76	16.98	Cervix	36.94	11.94	Prostate	83.38	10.54	
	4	Other thoracic organs	0.43	4.55	Ovary	1.29	10.30	Other and unspecified	4.91	7.74	Colorectum	36.70	11.87	Liver	79.93	10.11	
	5	Bone	0.43	4.55	Non-Hodgkin lymphoma	1.05	8.33	Liver	4.55	7.18	Liver	29.96	9.69	Stomach	57.72	7.30	
	6	Kidney	0.43	4.55	Bone	0.63	5.00	Ovary	4.35	6.86	Stomach	21.24	6.87	Other and unspecified	48.47	6.13	
	7	Oral and pharynx	0.00	0.00	Thyroid gland	0.63	5.00	Colorectum	4.19	6.61	Other and unspecified	17.60	5.69	Breast,female	45.71	5.78	
	8	Nasopharynx	0.00	0.00	Breast,female	0.43	3.43	Lung	3.93	6.21	Uterus	16.40	5.30	Bladder	33.12	4.19	
	9	Esophagus	0.00	0.00	Other thoracic organs	0.21	1.67	Leukemia	3.58	5.65	Thyroid gland	15.30	4.95	Pancreas	27.01	3.42	
	10	Stomach	0.00	0.00	Melanoma of skin	0.21	1.67	Brain	3.47	5.48	Ovary	13.21	4.27	Cervix	23.76	3.00	
Male	1	Brain	4.16	50.00	Leukemia	4.06	33.33	Liver	7.07	14.74	Lung	75.78	24.96	Lung	287.44	29.00	
	2	Other and unspecified	1.66	20.00	Brain	2.84	23.33	Colorectum	4.85	10.11	Liver	44.99	14.82	Colorectum	143.53	14.48	
	3	Other thoracic organs	0.83	10.00	Other and unspecified	2.84	23.33	Thyroid gland	4.85	10.11	Colorectum	38.36	12.64	Liver	103.93	10.49	
	4	Bone	0.83	10.00	Non-Hodgkin lymphoma	1.22	10.00	Lung	4.64	9.68	Stomach	26.05	8.58	Prostate	83.38	8.41	
	5	Leukemia	0.83	10.00	Other thoracic organs	0.41	3.33	Other and unspecified	4.54	9.47	Other and unspecified	16.10	5.30	Stomach	70.43	7.11	
	6	Oral and pharynx	0.00	0.00	Bone	0.41	3.33	Leukemia	4.14	8.63	Esophagus	14.68	4.84	Bladder	54.44	5.49	
	7	Nasopharynx	0.00	0.00	Melanoma of skin	0.41	3.33	Brain	3.23	6.74	Non-Hodgkin lymphoma	10.26	3.38	Other and unspecified	50.25	5.07	
	8	Esophagus	0.00	0.00	Oral and pharynx	0.00	0.00	Non-hodgkin lymphoma	2.93	6.11	Bladder	9.00	2.96	Esophagus	27.79	2.80	
	9	Stomach	0.00	0.00	Nasopharynx	0.00	0.00	Stomach	2.52	5.26	Brain	8.68	2.86	Leukemia	27.79	2.80	
	10	Colorectum	0.00	0.00	Esophagus	0.00	0.00	Nasopharynx	1.51	3.16	Leukemia	8.37	2.76	Pancreas	26.27	2.65	
Female	1	Leukemia	5.29	50.00	Leukemia	3.45	26.67	Thyroid gland	16.97	21.44	Breast,female	53.81	17.08	Lung	103.30	17.18	
	2	Brain	2.65	25.00	Brain	3.02	23.33	Breast,female	16.66	21.05	Cervix	36.94	11.72	Colorectum	98.26	16.34	
	3	Other and unspecified	1.76	16.67	Other and unspecified	1.72	13.33	Cervix	10.76	13.59	Colorectum	35.03	11.12	Liver	57.23	9.52	
	4	Kidney	0.88	8.33	Ovary	1.29	10.00	Other and unspecified	5.28	6.67	Lung	30.89	9.80	Other and unspecified	46.79	7.78	
	5	Oral and pharynx	0.00	0.00	Thyroid gland	1.29	10.00	Ovary	4.35	5.49	Thyroid gland	23.88	7.58	Stomach	45.71	7.60	
	6	Nasopharynx	0.00	0.00	Bone	0.86	6.67	Brain	3.72	4.71	Other and unspecified	19.10	6.06	Breast,female	45.71	7.60	
	7	Esophagus	0.00	0.00	Non-Hodgkin lymphoma	0.86	6.67	Colorectum	3.52	4.44	Stomach	16.40	5.20	Pancreas	27.71	4.61	
	8	Stomach	0.00	0.00	Breast,female	0.43	3.33	Lung	3.21	4.05	Uterus	16.40	5.20	Bladder	26.99	4.49	
	9	Colorectum	0.00	0.00	Oral and pharynx	0.00	0.00	Leukemia	3.00	3.79	Liver	14.81	4.70	Cervix	23.76	3.95	
	10	Liver	0.00	0.00	Nasopharynx	0.00	0.00	Uterus	2.38	3.01	Ovary	13.21	4.19	Thyroid gland	16.56	2.75	

Table 7 Mortality of cancer in Yunnan cancer registry, 2015

Registries	Gender	Deaths	Crude mortality (1/10 ⁵)	ASR China (1/10 ⁵)	ASR world (1/10 ⁵)	Cumulative rate (0~74 years)(%)	Truncated rate (35~64 years)(1/10 ⁵)
All	Both	6075	135.88	85.55	84.25	9.60	118.36
	Male	3673	163.03	104.23	102.76	11.81	138.34
	Female	2402	108.30	67.57	66.47	7.40	98.51
Urban	Both	4223	142.69	83.73	82.65	9.21	113.42
	Male	2559	172.68	101.06	100.12	11.36	133.84
	Female	1664	112.61	66.70	65.58	7.04	93.42
Rural	Both	1852	122.53	89.90	88.44	10.59	128.97
	Male	1114	144.47	111.37	109.08	12.87	147.07
	Female	738	99.69	70.38	69.65	8.35	110.37

Note: ASR: age-standardized rate

Table 8 Age-specific mortalities of cancer in Yunnan cancer registry, 2015 (1/10⁵)

Age group (years)	All			Urban			Rural		
	Both	Male	Female	Both	Male	Female	Both	Male	Female
0~	8.49	5.48	11.72	14.23	9.19	19.59	0.00	0.00	0.00
1~	5.55	5.88	5.19	8.75	9.27	8.20	0.00	0.00	0.00
5~	8.17	5.02	11.49	11.11	5.43	17.05	3.39	4.36	2.34
10~	5.70	3.16	8.40	4.68	2.61	6.84	7.28	3.98	10.88
15~	7.63	9.91	5.23	8.62	12.44	4.68	5.93	5.68	6.20
20~	9.48	12.95	5.91	11.24	15.36	7.11	6.65	9.20	3.92
25~	12.89	12.27	13.51	12.18	7.95	16.25	14.09	19.24	8.58
30~	14.96	15.67	14.27	12.38	12.25	12.51	19.91	21.73	17.90
35~	29.43	38.48	20.20	27.15	32.10	22.27	33.92	50.45	15.93
40~	49.27	54.30	43.98	50.94	58.49	43.10	45.70	45.53	45.88
45~	87.07	89.54	84.54	84.60	87.05	82.07	91.98	94.47	89.42
50~	123.63	128.50	118.66	114.69	120.66	108.61	142.67	145.11	140.16
55~	208.66	265.72	152.34	195.72	244.53	148.01	234.74	307.73	161.21
60~	305.46	372.35	239.73	295.88	375.44	219.11	329.05	364.98	292.14
65~	459.43	596.72	319.06	420.43	559.58	277.96	562.49	695.11	427.37
70~	592.73	750.67	436.60	582.00	729.65	431.92	619.95	806.67	447.93
75~	836.74	1071.72	619.14	870.28	1078.39	664.26	753.10	1052.87	518.32
80~	870.69	1147.51	631.36	925.45	1145.57	723.04	727.93	1153.21	415.26
85+	752.08	1034.48	541.99	759.64	1026.02	552.57	727.27	1065.52	509.91

示(Table 13),2011—2015 年,粗发病率趋于平稳,中标率和世标率均有所下降,与世界卫生组织国际癌症研究署(IACR)报道的中国恶性肿瘤的年龄别标化率年平均增长率位于 0.1%~1%区间内不符^[1],可能与近几年不断有新点的数据被纳入分析有关,我省恶性肿瘤发病率的变化趋势有待进一步论证。2012—2015 年,云南省恶性肿瘤死亡的粗率、中标率和世标率总体呈下降趋势,这与其他地方报道的结果一致^[9]。

分城乡分析,2015 年云南省城市地区恶性肿瘤发病率(225.17/10)高于农村(187.50/10 万),经人口年龄构成标化后,城市地区中标率为 144.14/10 万,世

标率为 139.35/10 万,农村地区中标率为 143.04/10 万,世标率为 139.00/10 万,差距不明显,这可能与云南省城镇化率不高有关(2018 年为 47.81%)^[10]。城市地区恶性肿瘤死亡率为 142.69/10 万,高于农村地区(122.53/10 万),经人口年龄构成标化后,城市地区中标率为 83.73 万,世标率为 82.65/10 万,农村地区中标率为 89.9/10 万,世标率为 88.44/10 万,农村略高于城市,与往年研究结果一致^[2],进一步提示促进医疗资源的均匀分配对降低农村地区恶性肿瘤死亡有积极意义。城市地区和农村地区年龄别发病率和死亡率的变化趋势相似,发病率在 40 岁以前较低,40 岁以后迅速升高,死亡率在 45 岁以前较低,

Table 9 The top 10 cancer mortality in Yunnan cancer registry, 2015

Rank	Sites	Both			Male			Female		
		Mortality (1/10 ⁵)	Proportion (%)	ASR China (1/10 ⁵)	Sites	Mortality (1/10 ⁵)	Proportion (%)	ASR China (1/10 ⁵)	Mortality (1/10 ⁵)	Proportion (%)
1	Lung	36.35	26.75	21.69	Lung	51.44	31.55	31.36	21.01	19.40
2	Liver	18.05	13.28	11.70	Liver	25.34	15.55	16.93	12.62	11.66
3	Colorectum	15.21	11.19	9.17	Colorectum	17.75	10.89	11.04	10.64	9.83
4	Stomach	10.13	7.46	6.28	Stomach	11.54	7.08	7.47	8.70	8.03
5	Breast,female	8.39	3.14	5.71	Prostate	6.35	3.89	3.31	8.39	7.74
6	Cervix	6.63	2.42	4.38	Leukemia	5.99	3.68	4.71	6.63	6.12
7	Prostate	6.35	2.35	3.31	Esophagus	5.24	3.21	3.42	5.14	4.75
8	Leukemia	5.48	4.03	4.46	Pancreas	5.06	3.10	3.19	4.96	4.58
9	Pancreas	4.45	3.28	2.61	Bladder	4.70	2.89	2.60	3.88	3.58
10	Brain	4.27	3.14	3.23	Brain	4.66	2.86	3.47	3.83	3.54

Table 10 The top 10 cancer mortality in urban cancer registry of Yunnan, 2015

Rank	Sites	Both			Male			Female		
		Mortality (1/10 ⁵)	Proportion (%)	ASR China (1/10 ⁵)	Sites	Mortality (1/10 ⁵)	Proportion (%)	ASR China (1/10 ⁵)	Mortality (1/10 ⁵)	Proportion (%)
1	Lung	36.80	25.79	20.23	Lung	52.91	30.64	29.27	20.64	18.33
2	Liver	18.92	13.26	11.44	Liver	26.39	15.28	16.27	12.72	11.30
3	Colorectum	15.68	10.99	8.61	Colorectum	18.62	10.79	10.40	11.44	10.16
4	Stomach	10.54	7.39	6.06	Stomach	11.88	6.88	7.08	9.20	8.17
5	Breast,female	9.20	3.27	5.98	Prostate	8.44	4.88	3.87	9.20	8.17
6	Prostate	8.44	2.96	3.87	Leukemia	6.82	3.95	5.02	6.50	5.77
7	Cervix	6.50	2.27	4.05	Pancreas	6.28	3.63	3.53	5.62	4.99
8	Leukemia	6.22	4.36	4.94	Esophagus	6.01	3.48	3.65	5.35	4.75
9	Pancreas	5.47	3.84	2.91	Brain	5.06	2.93	3.46	4.67	4.15
10	Brain	4.60	3.22	3.30	Bladder	4.45	2.58	2.11	4.13	3.67

Table 11 The top 10 cancer mortality in rural cancer registry of Yunnan, 2015

Rank	Sites	Both			Male			Female		
		Mortality (1/10 ⁵)	Proportion (%)	ASR China (1/10 ⁵)	Sites	Mortality (1/10 ⁵)	Proportion (%)	ASR China (1/10 ⁵)	Mortality (1/10 ⁵)	Proportion (%)
1	Lung	35.46	28.94	25.14	Lung	48.63	33.66	36.38	21.75	21.82
2	Liver	16.34	13.34	12.28	Liver	23.34	16.16	18.34	12.43	12.47
3	Colorectum	14.29	11.66	10.35	Colorectum	16.08	11.13	12.44	9.05	9.08
4	Stomach	9.33	7.61	6.79	Stomach	10.89	7.54	8.33	7.70	7.72
5	Cervix	6.89	2.75	5.18	Bladder	5.19	3.59	3.86	6.89	6.91
6	Breast,female	6.75	2.86	5.19	Leukemia	4.41	3.05	3.96	6.75	6.78
7	Bladder	4.10	3.35	2.94	Brain	3.89	2.69	3.43	4.73	4.74
8	Ovary	4.05	1.62	2.74	Esophagus	3.76	2.60	2.89	4.05	4.07
9	Leukemia	4.04	3.29	3.52	Bladder	3.50	2.42	2.66	3.65	3.66
10	Brain	3.64	2.97	3.10	Nasopharynx	2.85	1.97	2.17	3.38	3.39

Table 12 The top 10 cancer mortality in different age groups in cancer registry of Yunnan, 2015

Gender	Rank	0-4 age group		5-14 age group		15-44 age group		45-64 age group		≥65 age group	
		Sites	Mortality Proportion (1/10 ⁵)	Sites	Mortality Proportion (1/10 ⁵)	Sites	Mortality Proportion (1/10 ⁵)	Sites	Mortality Proportion (1/10 ⁵)	Sites	Mortality Proportion (1/10 ⁵)
Both	1	Leukemia	3.00	Leukemia	3.76	Breast,female	3.93	Lung	42.01	Lung	193.53
	2	Brain	0.86	Brain	1.67	Liver	3.88	Liver	25.68	Colorectum	85.11
	3	Other and unspecified	0.86	Other and unspecified	0.63	Leukemia	2.81	Colorectum	14.90	Liver	75.12
	4	Lung	0.43	Liver	0.21	Cervix	2.48	Breast,female	14.17	Prostate	51.02
	5	Other thoracic organs	0.43	Other thoracic organs	0.21	Lung	2.45	Stomach	13.40	Stomach	48.66
	6	Bone	0.43	Bone	0.21	Brain	1.79	Cervix	12.42	Other and unspecified	30.53
	7	Oral and pharynx	0.00	Non-Hodgkin lymphoma	0.21	Colorectum	1.64	Ovary	7.32	Pancreas	24.98
	8	Nasopharynx	0.00	Oral and pharynx	0.00	Other and unspecified	1.43	Other and unspecified	6.90	Bladder	22.02
	9	Esophagus	0.00	Nasopharynx	0.00	Stomach	1.07	Leukemia	5.87	Bladder	21.46
	10	Stomach	0.00	Esophagus	0.00	Non-Hodgkin lymphoma	0.82	Bladder	5.39	Breast,female	21.24
Male	1	Leukemia	2.50	Leukemia	1.62	Liver	6.26	Lung	58.88	Lung	286.67
	2	Lung	0.83	Brain	1.22	Leukemia	3.43	Liver	39.31	Colorectum	103.17
	3	Other thoracic organs	0.83	Other and unspecified	0.81	Lung	3.23	Colorectum	16.58	Liver	98.98
	4	Bone	0.83	Other thoracic organs	0.41	Colorectum	2.42	Stomach	15.94	Stomach	53.68
	5	Other and unspecified	0.83	Oral and pharynx	0.00	Brain	2.02	Esophagus	8.84	Prostate	51.02
	6	Oral and pharynx	0.00	Nasopharynx	0.00	Other and unspecified	1.92	Pancreas	6.79	Other and unspecified	35.79
	7	Nasopharynx	0.00	Esophagus	0.00	Stomach	1.82	Leukemia	6.79	Bladder	34.64
	8	Esophagus	0.00	Stomach	0.00	Non-Hodgkin lymphoma	0.81	Other and unspecified	6.00	Pancreas	25.51
	9	Stomach	0.00	Colorectum	0.00	Nasopharynx	0.71	Brain	5.05	Esophagus	21.32
	10	Colorectum	0.00	Liver	0.00	Bone	0.71	Nasopharynx	4.26	Leukemia	19.42
Female	1	Leukemia	3.53	Leukemia	6.03	Breast,female	3.93	Lung	25.00	Lung	105.46
	2	Brain	1.76	Brain	2.15	Cervix	2.48	Breast,female	14.17	Colorectum	68.03
	3	Other and unspecified	0.88	Liver	0.43	Leukemia	2.17	Colorectum	13.21	Liver	52.55
	4	Oral and pharynx	0.00	Bone	0.43	Lung	1.66	Cervix	12.42	Stomach	43.91
	5	Nasopharynx	0.00	Non-Hodgkin lymphoma	0.43	Brain	1.55	Liver	11.94	Other and unspecified	25.56
	6	Esophagus	0.00	Other and unspecified	0.43	Liver	1.45	Stomach	10.83	Bladder	25.20
	7	Stomach	0.00	Oral and pharynx	0.00	Other and unspecified	0.93	Other and unspecified	7.80	Pancreas	24.48
	8	Colorectum	0.00	Nasopharynx	0.00	Colorectum	0.83	Ovary	7.32	Breast,female	21.24
	9	Liver	0.00	Esophagus	0.00	Non-Hodgkin lymphoma	0.83	Bladder	6.53	Cervix	16.20
	10	Bladder	0.00	Stomach	0.00	Ovary	0.62	Brain	5.25	Leukemia	14.40

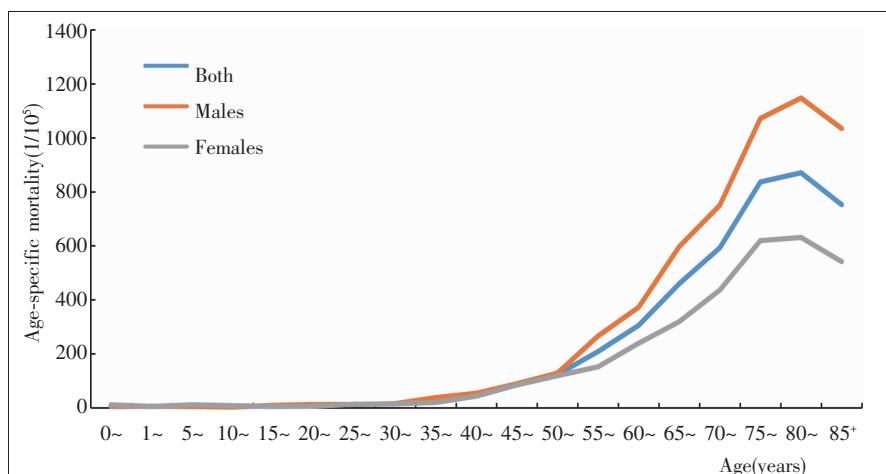


Figure 3 Age-specific mortality for all cancers in Yunnan cancer registries, 2015

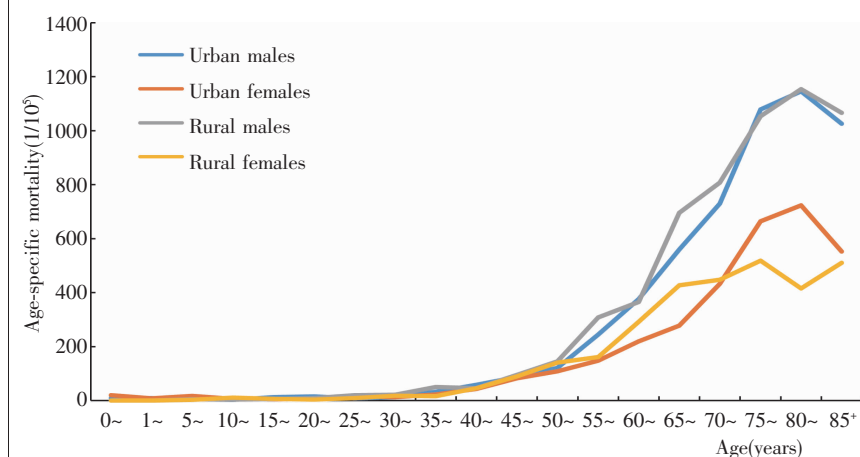


Figure 4 Age-specific mortality for all cancers in Yunnan urban and rural cancer registries, 2015

Table 13 Incidence and mortality of cancer in Yunnan cancer registry, 2011—2015 (1/10⁵)

Year	Incidence			Mortality		
	Crude incidence	ASR China	ASR world	Crude mortality	ASR China	ASR world
2011 ^[4]	182.20	177.53	140.39	110.73	107.81	84.71
2012 ^[5]	200.71	197.75	153.01	142.39	140.06	108.76
2013 ^[3]	213.16	156.30	151.05	131.07	91.21	89.57
2014 ^[2]	213.90	152.12	147.59	127.49	84.42	83.21
2015	212.44	143.77	139.16	135.88	85.55	84.25

Note: ASR: age-standardized rate

45 岁以后迅速升高。城市地区男性和女性、农村地区男性发病率的高峰出现在 75 岁年龄组, 死亡率的高峰出现在 80 岁年龄组。农村地区女性发病率的高峰提前到 70 岁年龄组, 死亡率的高峰提前到 75 岁年龄组。

城市地区和农村地区男性发病前 4 位癌种均

是肺癌、结直肠癌、肝癌和胃癌, 居城市地区男性发病第 5 位的是前列腺癌, 而居农村地区男性发病第 5 位的是膀胱癌。乳腺癌列居城市女性恶性肿瘤发病的第 1 位, 甲状腺癌和宫颈癌分别列居第 4 位和第 5 位(结直肠癌为第 2 位, 肺癌为第 3 位)。而在农村地区, 宫颈癌列居女性恶性肿瘤发病的第 1 位, 乳腺癌列居第 2 位(肺癌、结直肠癌和肝癌依次列居第 3 到 5 位)。农村和城市居民恶性肿瘤的主要死亡原因略有不同, 除肺癌、肝癌、结直肠癌和胃癌外, 前列腺癌为城市男性的第 5 位恶性肿瘤死亡原因, 膀胱癌为农村男性的第 5 位癌症死亡原因。乳腺癌为农村女性的第 4 位癌症死亡原因(第 1~3 位为肺癌、结直肠癌和肝癌, 第 5 位为胃癌), 宫颈癌为农村女性的第 5 位死亡原因(第 1~4 位为肺癌、结直肠癌、肝癌和胃癌)。提示我省癌情复杂, 体现在即具有发展中国家的癌情特征, 肝癌、胃癌和食管癌等消化系统肿瘤高发, 又具有西方国家的癌情特征, 前列腺癌和甲状腺癌等高发, 同时宫颈癌和膀胱癌以生活卫生习惯密切相关的恶性肿瘤仍然居高不下。单一的防癌策略已经不能满足需求, 应进一步分析各地主要恶性肿瘤及危险

因素构成, 制定有针对性、可操作的防癌策略。

不同年龄段人群的发病、死亡水平和主要恶性肿瘤明显不同, 15 岁以下人群恶性肿瘤发病和死亡率较低, 主要恶性肿瘤是白血病和脑瘤。15~64 岁人群的发病率和死亡率随年龄的增长逐渐升高, 主要恶性肿瘤是乳腺癌、甲状腺癌、肺癌和肝癌。65 岁以

上人群恶性肿瘤的发病率和死亡率随年龄增长增加迅速,主要恶性肿瘤是肺癌和结直肠癌。与国内其他省市的研究结果相似^[9]。恶性肿瘤对人群全生命周期造成严重影响,对15岁以下人群,应重点关注白血病和脑瘤的防治,对15岁以上人群,乳腺癌、甲状腺癌、肺癌、肝癌和结直肠癌应为防治重点。

综上,云南肿瘤谱具有本地特征,城市和农村地区癌谱略有不同,不同性别、年龄别人群癌谱不同。应针对云南省特点和城乡地区差异,结合年龄别和性别构成制定针对性防控策略。

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